



# PREVALENCE OF MUSCULOSKELETAL DISORDERS AMONG IT PROFESSIONALS IN TECHNOPARK THIRUVANANTHAPURAM

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## ABSTRACT

Musculoskeletal disorders or MSDs are soft tissue injuries caused by sudden or sustained exposure to repetitive motion, force, vibration and awkward positions. IT Professionals represent an occupational group where chances to develop MSDs are high because of their work pattern, in which they have fixed or constrained body position, continual repetition of movements, force concentrated on small parts of the body, like hand or wrist or a pace of work that does not allow sufficient recovery between movements. In India, many studies were done to evaluate the prevalence of MSDs among other occupational groups but not much among IT Professionals. This study has been carried out to determine the prevalence of Musculoskeletal Disorders (MSD) among IT Professionals. The study design was cross sectional with information technology (IT) Professionals working in Technopark Thiruvananthapuram as the study population. The sampling method used for the survey is the simple random sampling. Data was collected using a modified version of Dutch musculoskeletal questionnaire. Chi-square ( $\chi^2$ ) test was applied for statistical significance and associations were assessed through p value with 95% confidence interval. Prevalence of work related MSD during last 12 months, was 36.57%. The common prevalence of work related MSD reported during last 12 months based on their body region were neck (83.42), shoulders (76.57%), and back (61.71%). There was a statistically significant difference in terms of experience, sitting for long period, using key board and working in the same posture for long period. There was no statistically significant difference in terms of age, BMI, gender, education. The study has concluded that MSD is prevalent among IT Professionals working in Technopark Thiruvananthapuram..

**KEYWORDS:** Musculoskeletal Disorders, IT Professionals, Prevalence

## INTRODUCTION

Work related musculoskeletal disorders (WRMSDs) are common among computer Professionals.

The WRMSDs describe a wide range of inflammatory and degenerative disease conditions that result in pain and functional impairment affecting the neck, shoulders, elbow, wrist, and hand<sup>1</sup>. Musculoskeletal disorders are work-related when the work environment and performance of work are significant contributors to their development or exacerbation, but are not the sole determinant of causation. Thus a disorder is work related when work procedures, equipment, or environment contribute significantly the cause of the disorder (WHO 1985)<sup>2</sup>.

Due to the nature of job, IT Professionals face several health issues. They are mainly prone to musculoskeletal pains due to their occupational characteristics. This study is an enquiry in to the prevalence of musculoskeletal disorders among IT Professionals.

## OBJECTIVE OF THE STUDY

To assess the prevalence of musculoskeletal disorders among IT Professionals.

## MATERIALS AND MEETHODS

**Study design:** Cross - Sectional Survey

**Study setting:** Technopark, Thiruvananthapuram

**Study population:** IT Professionals in the age group of 25-45 from both genders.

## Inclusion Criteria

1. IT Professionals in the age group of 25-45 years.
2. IT Professionals of both genders.
3. IT Professionals with minimum experience of 5 year

## Exclusion Criteria

1. Non co-operative persons.
2. Persons having other diagnosed systemic disorders.
3. Any type of postural deformity
4. Pregnant women

## Sample Size

Sample size (n) is calculated by the formula given by  $n = [(Z\alpha)^2(p*q)]/d^2$

Where  $Z\alpha = 1.95$

p is expected prevalence which is 50% from the pilot study  
q is 100-p

d is absolute error or precision, here it is taken as 15% of p

With these values n is calculated to be 171. So the sample size was up sized to 175.

**Sampling Technique**

Simple random sampling

**Data Collection**

Data were collected using a modified version of Dutch Musculoskeletal questionnaire.

**Study Tool**

Modified version of Dutch Musculoskeletal Questionnaire

**Study Setting**

Technopark, Thiruvananthapuram

**Study Period**

One point prevalence study between June 2018 and May 2019.

**Outcome Variable**

Data related to prevalence of musculoskeletal disorders among IT professionals.

**PROCEDURE**

- 800 IT Professionals who were available and willing to participate in the survey were selected according to the inclusion and exclusion criteria.
- After general introduction about the study, Mail Ids were collected and 175 Mail Ids were selected as per lottery method. Questionnaire was mailed to 175 persons.
- The data obtained was compiled, coded and tabulated.

**STATISTICAL ANALYSIS**

- The data entry and analysis was performed with SPSS version 17.
- The final data was summarized into frequencies and percentage for different variables.
- Chi-square ( $\chi^2$ ) test was applied for statistical significance
- Associations were assessed through p value with 95% confidence interval.

**OBSERVATION****Socio demographic data****Age**

Among 175 samples 43.4% of IT Professionals belonged to 30-35 years of age and 5.1% in 40-45 years of age. The age group of 30-35 showed highest percentage of WRMSDs

**Sex**

Among the studied population, 61.1% were males and 38.9% were females. 59.37% of the total IT Professionals presenting with MSD were males.

**BMI**

Among the population surveyed, 62.9% of the Professionals were within the normal range of BMI, 24.6% were found to be overweight, 7.4% were underweight, and 5.1% were obese. Data related to association of prevalence of MSDs with

**Experience**

Among the IT professionals having MSD 40.63% had an

experience up to 5 years and 59.37% had an experience greater than 5 years.

**Duration of work**

Among the population surveyed, 68.6% of the Professionals worked up to 48 hours per week and 31.4% worked greater than 48 hours. 68.75% of IT Professionals having MSD worked up to 48 hours and 31.26% worked above 48 hours.

**Analysis of association of job tasks and prevalence of MSD****Sitting for long period**

25% of IT Professionals with MSD and 63.96% of IT Professionals without MSD were reported sitting for long time is strenuous for them.

**Use of Keyboard /Mouse**

93.75% of IT Professionals with MSD reported use of keyboard/mouse as a strenuous job. 72.07% of IT Professionals without MSD reported it as a strenuous job.

**Working in the same posture for long period**

87.5% of IT Professionals with MSD reported working in the same posture as a strenuous job task and 12.5% as non strenuous.

**Distribution of musculoskeletal pain/discomfort (Nonspecific recall period)**

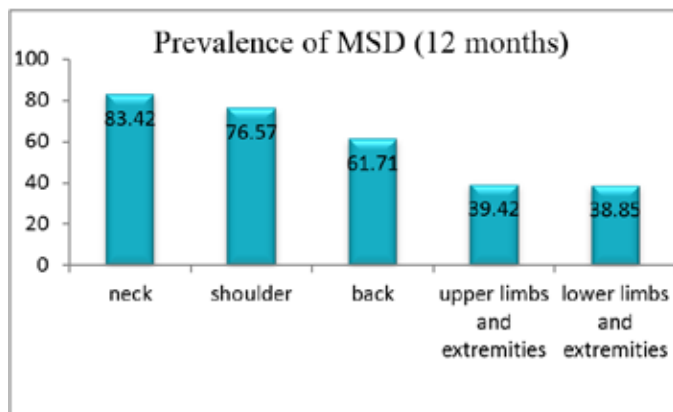
Majority of IT Professionals (94.85) experienced some kind of musculoskeletal pain/discomfort at some point of time after joining. Pain/discomfort in the neck region- 72.57%, upper back 60%, 64% lower back, 73.7% at shoulders, 26.3% at elbow, 67.4% at wrist and hand, 23.4% at hips/thighs, 33.7% at knees, and 28% reported at ankles/feet.

**Overall prevalence of MSD (Nonspecific recall period)**

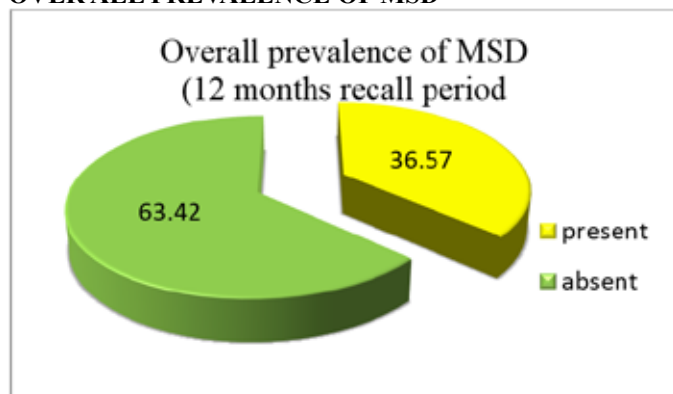
|         | Pain or discomfort at any sites after entering the profession. | N   | Percentage |
|---------|--|-----|------------|
| Present | 166  | 175 | 94.85      |
| Absent  | 9  | 175 | 5.15       |

**Table 1:** Distribution of overall prevalence of MSD (non specific period)

94.85% of people experience some sort of pain or discomfort after joining. Since this can't be taken as the prevalence of MSD, the 12 month prevalence was assessed.

**Prevalence of MSD 12 month duration.****Chart 1:** Distribution of pain/discomfort at (12 month recall period)**Distribution of pain/discomfort at (12 month recall period)**

| Region     | Neck  | Shoulder | Back  | Upper limb and extremities | Lower limb and extremities |
|------------|-------|----------|-------|----------------------------|----------------------------|
| Percentage | 83.42 | 76.57    | 61.71 | 39.42                      | 38.85                      |

**Table 2:** Distribution of pain/discomfort at (12 month recall period)**OVER ALL PREVALENCE OF MSD****Chart 2:** overall prevalence of MSD 12 months recall period

|         | Pain or discomfort in the past 12 months at any of the sites | Percentage |
|---------|--|------------|
| Present | 64   | 36.57      |
| Absent  | 111  | 63.42      |

**Table 3:** percentage of pain or discomfort in last 12 months**DISCUSSION****Gender**

- Prevalence is found more in males than females.
- The Chi square test revealed no significant association between gender and MSD in this survey. (p value 0.53)

**Age**

- The Chi square test revealed no association between age and MSD (p value 0.777)

- 30-35 age group showed more prevalence (42.19%)

**BMI**

- The Chi square test revealed no significant association between BMI and presence of MSD. (p value 0.155)

**Education**

- There was no significant association with education and MSD (p value 0.36)

**Experience**

- The Chi square test showed significant association between experience and MSD. (P value 0.016)

**Weekly working hours**

- Despite being a significant factor, the Chi square test revealed no association between weekly working hours and MSD. (P value 0.152)

**JOB TASKS****Sitting for long period**

- 81.25% were reported sitting for long period as a strenuous job
- From the p value (0.015) it was clear that sitting for long period was significantly associated with MSD.

**Use of keyboard or mouse**

- Use of keyboard or mouse was significantly associated with MSD (p value 0.0005).

**Working in the same posture for long period**

- From the Chi square test (p value 0.002) it was clear that working in the same posture for long period was significantly associated with MSD.

**Prevalence with non-specific recall period**

The most affected region is the back region, particularly low back. Over all prevalence was 94.85% inferring almost all professionals had some kind of musculoskeletal pain during the past.

**Prevalence with 12 month recall period**

- Highest prevalence of MSD were found at the neck (83.42%)
- The overall prevalence of MSD with 12 month recall period 36.57% which can be taken as the prevalence of MSD among the IT professionals

**RESULT**

Over all prevalence of MSD among IT professionals in Technopark Thiruvananthapuram – 36.57%

**CONCLUSION**

The evaluation of collected data showed

- Over all prevalence of MSD among IT Professionals - 36.57%
- Neck region - 83.42%
- Shoulders - 76.57%
- Upper limb and extremities - 39.42%
- Lower limb and extremities - 38.85%

- Back region - 61.71%

The working environment of software Professionals has a direct impact on their health and wellbeing. Therefore, appropriate prevention and intervention strategies must be adopted. Cost effective interventions in this regard is of utmost importance in developing nations like India.

## REFERENCES

1. [http://en.m.wikipedia.org/wiki/Occupational\\_safety\\_and\\_health](http://en.m.wikipedia.org/wiki/Occupational_safety_and_health) (accessed on 1 January 2024)
2. Textbook of Preventive and Social Medicine; MC Gupta and BK Mahajan, Jaypee Brothers medical publishers (P) LTD; 3rd edition 2005; page 66